

Project: Energy Efficient Freezers

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Description: Tufts has the opportunity to cause a guaranteed, measurable, and significant reduction in energy usage that will pay for itself by encouraging labs to switch to energy efficient freezers. One of the largest energy users in research labs are ultra-low temperature (ULT) freezers. Inefficient ULT freezers not only use as much energy as it takes to run an average household (17-30kWH/day) but also produce large amounts heat, increasing HVAC energy costs. New energy efficient models can reduce energy usage and costs by as much as 75%, or over \$1500 per year. Tufts has already performed analyses showing the energy and cost savings of efficient freezers in the past, has had freezer challenges to encourage better freezer habits, and has acknowledged researchers who switched to more energy efficient models in sustainability reports. So why are there still 10-15 year old energy hogging freezers on Tufts' campuses? Energy efficient freezers can cost anywhere from \$11,000-\$30,000. Research labs work on constrained budgets, and do not necessarily have funds to replace their old freezers. Even when a lab is in the market for a new freezer, a cost difference of \$3000+ between an efficient and inefficient freezer can make a significant impact on their budget. While the energy cost savings of efficient models more than make up for this additional cost, these saving are not passed on to the lab. By providing monetary incentives for labs to purchase energy efficient ULT freezers, Tufts could transfer some of the cost saving it receives back to the people who initiated the change, encouraging others to switch to more efficient freezers as well.

People Involved: This project would require collaboration between the Tufts sustainability office, biomedical research departments, and purchasing department, to advertise the promotion and identify eligible freezers that need to be replaced.

Budget: There are 2 methods that can make this project successful: 1: When labs are purchasing a new ULT freezer, provide monetary incentive to cover the cost differential between an inefficient and efficient unit (\$2,000- \$5,000 per freezer) 2: A larger difference could be made by allocating funds to replace even one energy inefficient ULT over 10 years old still at the school. This cost could be \$12,000+ per freezer, however the energy savings would pay for the entire cost of the freezer over the life of the unit. .

Timeline: The steps involved in this project are pretty simple and minimal. Many steps of this project are already complete. Tufts has already identified preferred efficient freezers to purchase (see attached), and has calculated the cost savings. After being funded, it would take up to a month to prepare and send out information about the incentives to research labs. It would then be on the schedule of the labs to purchase the freezers and receive their incentive. If we decide it makes sense to just fully fund 1 freezer, that freezer needs to be identified, and then it will be up to the research lab to pick an efficient replacement.

Benefit to Tufts Community: This project is an already researched way for Tufts to make measurable and significant reductions in energy usage that will pay for themselves. Even after the funding is spent, the location of efficient freezers around campus can be cataloged, and serve as advertising to encourage future research lab to make sustainable freezer purchases.